

Efficacy of a low-glycaemic index diet in women with polycystic ovary syndrome

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Polycystic ovary syndrome (PCOS) is a common endocrine disorder affecting between 5–10% of women of reproductive age in the UK⁽¹⁾. Weight management is the primary strategy for overweight women with PCOS (wPCOS); however, 80% of wPCOS, including lean women, are insulin resistant⁽²⁾. Low-glycaemic index (GI) diets are proposed as a useful strategy for the management of insulin resistance in wPCOS⁽³⁾. This research aims to determine the efficacy of an isoenergetic low-GI dietary intervention in wPCOS.

Twenty-one wPCOS (mean age 32.1 (SD 6.7)) years completed a 12-week low-GI dietary intervention (weeks 12–24), preceded by a 12-week control period (weeks 0–12). Dietary intake, body composition and measures of insulin sensitivity were determined.

	Week 0 (n 21)		Week 12 (n 21)		Week 24 (n 21)	
	Mean	SD	Mean	SD	Mean	SD
BMI (kg/m ²)	29.0	5.3	29.1	5.0	28.5	4.5
Dietary GI*	54.6	3.5	54.5 ^a	4.8	49.0 ^a	5.1
Dietary GL†	10.3	3.7	10.7	3.2	9.8	5.4
Energy [kJ/d (kcal/d)]	8493.52 (2030)	1615.024 (386)	8430.76 (2015)	2581.528 (617)	8242.48 (1970)	2045.976 (489)
CHO intake (% energy)	43.0	8.4	46.9	8.0	46.0	8.0
Fat intake (% energy)	38.3	6.6	35.6	5.8	34.3	5.1
Protein intake (% energy)	16.1	3.6	15.3	3.6	16.5	3.8
Fasting glucose (mmol/l)	5.1	0.3	5.2	0.2	5.2	0.3
2 h glucose (mmol/l)	5.5	1.1	5.2	1.0	5.6	1.5
Fasting insulin (μU/ml)	13.3	5.4	14.6	6.3	12.5	5.2
2 h insulin (μU/ml)	42.3	21.8	40.4	25.4	41.2	26.1
Insulin resistance (HOMA index)	1.7	0.7	1.9	0.8	1.6	0.7
Insulin sensitivity (HOMA index)	69.2	34.1	61.1 ^b	24.9	72.8 ^b	32.0

*Low: <55, medium: 55–69, high ≥70; †Low: <10, medium: 10–19.9, high ≥20. ^(a,b) P<0.05.

At week 24, dietary GI reduced significantly from 54.5 (SD 3.5) at week 12 to 49.0 (SD 5.1) (P<0.001) and insulin sensitivity improved (P = 0.027). Trends for improvement to fasting insulin (P = 0.08), insulin resistance (HOMA-IR) (P = 0.08) and waist circumference (94.3 (SD 12.2) cm to 91.2 (SD 10.7) cm (P = 0.06)) were found, with no significant changes to weight or macronutrient intake. Percentage carbohydrate and fat intake at baseline were not in line with current recommendations for health; consistent with previous findings⁽⁴⁾.

This is the first study to implement an isoenergetic low-GI diet in wPCOS. Initial findings demonstrate improvements to insulin sensitivity independent of weight loss. These results will help to inform dietetic practice and provide essential evidence towards effective dietary management for both lean and overweight women with PCOS.

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